

IDAHO NATIONAL ENGINEERING
ENVIRONMENTAL LABORATORY PUBLIC MEETING

Test Area North Comprehensive Remedial
Investigation/Feasibility Study Proposed Plan

FINAL AS OF NOVEMBER 18, 1999

February 24, 1998
Boise, Idaho
7:00 p.m.

Nancy Schwartz Reporting
2421 Anderson Street
Boise, Idaho 83702
(208) 345-2773

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1 BOISE, IDAHO, TUESDAY, FEBRUARY 24, 1998
2
3 MR. SIMPSON: Welcome to tonight's
4 meeting. I'm Erik Simpson. I'm the community
5 relations plan coordinator for the INEEL
6 Environmental Restoration Program. I will be the
7 facilitator tonight.
8 We're here to discuss the results of
9 the Test Area North Comprehensive Remediation
10 Investigation/Feasibility Study and the subsequent
11 proposed plan. This is the fourth Comprehensive
12 Remedial Investigation/Feasibility Study completed
13 under our Federal Facility Agreement and Consent
14 Order, which is our legally binding clean-up
15 agreement between the Department of Energy,
16 Environmental Protection Agency and state of
17 Idaho.
18 I should mention we have five more
19 Comprehensive Remedial Investigation/Feasibility
20 Studies underway, and we'll be releasing proposed
21 plans on those projects over the course of the next
22 five years.
23 The last time that we were in Boise
24 was about a month ago to discuss the results of two
25 other comprehensive investigations. Those dealing

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1 with the Naval Reactors Facility, also known as
2 Waste Area Group 8 and Argonne National
3 Laboratory-West, which is Waste Area Group 9. The
4 comment period for those projects was extended,
5 based on a request from the public. The comment
6 period will continue until March 12th. So we have
7 roughly two and a half weeks to go.
8 The agencies plan to sign a Record
9 of Decision for those projects sometime this
10 summer, then any remediation activities would,
11 probably, begin late fall or into the spring.
12 The purpose of tonight's meeting is
13 really three-fold. The first reason that we're
14 here is to present information on the Test Area
15 North Comprehensive Investigation. It's been
16 ongoing for about 30 months; second, we would like
17 you to ask questions of us and interact with the
18 project managers, which some of you have been doing
19 already; and third, we want to have a chance to
20 listen to what is important to you and encourage
21 you to provide oral comments for the record. And I
22 should state, also, that we have a comment form
23 in the back of the proposed plan, and it's
24 postage-paid, so you can jot down your comment and
25 fold it and put it in the mail. Your comments will

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1 be considered by the agencies and responded to in
2 the Responsiveness Summary section of the Record of
3 Decision.
4 We have a court reporter here
5 tonight, who will be recording all portions of the
6 meeting. And I will talk about that in a little
7 while.
8 Also, in the back of the room, we
9 have a resource table where we have brought several
10 documents. We have got three proposed plans:
11 Waste Area Group 1, Test Area North; Waste Area
12 Group 8, Naval Reactors, and Waste Area Group 9,
13 Argonne National Lab. And we have some INEEL
14 Reporters. We got some Citizens' Guides. We have
15 the Community Relations Plan, and we have the
16 Federal Facility Agreement and Consent Order.
17 I would like to take second to
18 review the agenda with you. Shortly, I'll
19 introduce everyone who is associated with this
20 project, and then we'll hear the presentation. And
21 following that, we will have a question-and-answer
22 session where you can ask questions of the project
23 managers. You can either do that just out loud or
24 we have five-by-seven cards, too, if you want to
25 jot down a question on a card.

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1 Following the question-and-answer
2 session, we will have the public comment period
3 where your comments are entered into the record.
4 And on the back of the agenda, we have an
5 evaluation form. If you would just take a few
6 moments after the meeting and jot down your
7 impressions of this gathering here tonight, and
8 we'll use your comments to shape the future public
9 meetings that we have.

10 With that, I would like to introduce
11 everyone who is here tonight associated with this
12 project. First we have Mark Shaw. Mark is the
13 Waste Area Group 1 manager for the Department of
14 Energy. He has been involved in this investigation
15 for about 18 months.

16 MR. SHAW: A couple years.

17 MR. SIMPSON: A couple years. We
18 have Doug Burns. Doug was instrumental in
19 conducting the risk assessment for this
20 investigation. He is with Lockheed Martin
21 Technologies Company.

22 We have Dave Michael. Dave is the
23 project manager on the Waste Area Group 1
24 Comprehensive Investigation. He is also with
25 Lockheed Martin.

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1 Also, I would like to introduce
2 Clyde Cody. Clyde is with State of Idaho
3 Department of Health and Welfare Division of
4 Environmental Quality.

5 And Matt Wilkening is with the
6 Environmental Protection Agency Region 10 office in
7 Seattle. And both of our agency representatives
8 will make a few statements.

9 MR. WILKENING: I'm Matt Wilkening
10 with EPA out of Seattle. I've been working on this
11 site since we started it. I'm one of the few
12 people who have had the pleasure of doing that. We
13 think that we've come to a pretty to good idea as
14 to what alternatives we should use for remediation
15 at this site.

16 But working on it over, what, a
17 three-year period, we could get tunnel vision and
18 that is why it's important to take this out to the
19 public and talk to you guys and see if it makes
20 sense to you as to what we want to clean up this
21 site, so please listen, and ask questions.
22 Hopefully we will give you an answer that you're
23 interested in hearing and explain things, and
24 submit any comments that you have. Thank you.

25 MR. CODY: I'm Clyde Cody with the

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1 Division of Environmental Quality. I work here in
2 Boise, and pretty much the same thing that Matt
3 said, that I came in this project in the middle of
4 it, pretty much, and worked towards the preferred
5 alternatives and now is the time to get the
6 public's input. We want to see what people think
7 of our plan and go from there, so we will look very
8 much forward to hearing what you have to say
9 tonight. Thanks.

10 MR. SIMPSON: Thanks. With that, I
11 would like to bring Mark Shaw up here. Mark, once
12 again, is the Department of Energy Waste Area Group
13 1 manager. And he will give a brief background of
14 Test Area North and a little bit about the
15 comprehensive investigation.

16 MR. SHAW: To get oriented here,
17 Test Area North sits in the north central portion
18 of the INEEL. TAN has a pretty colorful history.
19 It all started back in 1954 when President
20 Eisenhower heard a rumor that the Russians were
21 building a nuclear powered airplane, and he decided
22 if they are building one, we better have one too.
23 So he commissioned the Aircraft Nuclear Propulsion
24 program and sited it out in the Arco desert.

25 This is actually the hanger they

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1 built for the airplane. They never actually built
2 the plane, but they did build a couple engines for
3 it, which they tested out at the Initial Engine
4 Test Facility. This facility no longer exists.

5 AUDIENCE MEMBER: Mark, when was
6 that first picture taken?

7 MR. SHAW: In 1996. This one was
8 in '85. After that program was canceled in '61,
9 the emphasis really shifted to reactor research.
10 This is the Water Reactor Research Test Facility
11 where they tested pool and cable type reactors.
12 Actually, I want to go back to this first one.
13 This is the LOFT Reactor, Loss of Fluid Test
14 Facility, where they tested the effects of cooling
15 water losses on reactor cores.

16 This will give you a big picture
17 view of the site. The hanger is back here. That
18 white dome is the loss reactor. They would pull
19 the cores out and ship them by train down to the
20 hot shop here where they would inspect them.

21 We all remember the Three-Mile
22 Island accident. They shipped fuel across from
23 Pennsylvania, and they examined it in the hot shops
24 there.

25 By far the most interesting project

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1 going on up there now was in the old aircraft
2 hanger. They actually built the building inside
3 the hanger where they built the armor for the
4 M1-A1 tank. The armor is made out of depleted
5 uranium which is an incredibly dense material and
6 it makes great armor.

7 As you can imagine, a lot of
8 industrial type activity over about a 45-year
9 period, a lot of chemical waste generated, a lot of
10 rad waste generated, and this led to releases to
11 the environment.

12 When we started this investigation
13 about three years ago, we went through every
14 facility at TAN, looked at all the active
15 facilities, all the inactive facilities looking for
16 those releases to the environment. We found 94
17 potential releases. Thirty-one of those were
18 addressed in a prior Record of Decision, the
19 Operable Unit 1-07B Record of Decision. You may
20 have heard of the TAN
21 groundwater project, that is the Record of Decision
22 that covers that project.

23 Of the remaining sites, eight have
24 an unacceptable risk for human health. It is
25 really what we're here to talk about tonight. Two

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1 sites have an unacceptable risk for ecological
2 receptors, and the remaining 53 sites, we're
3 recommending for No Further Action.

4 Now, what No Further Action means,
5 if you remember, these were potential release
6 sites. A No Further Action site could be something
7 where we thought there was contamination, but upon
8 further investigation, there was none, or there may
9 be contamination there but it's at such a low
10 level, it doesn't pose a risk.

11 The two eco sites are not addressed
12 in our proposed plan. When you do an ecological
13 risk assessment, you look at the impacts that your
14 site has on an entire population of receptors. And
15 our two eco sites are so small that they would not
16 have an impact on an entire population of
17 receptors.

18 So what we're doing is a
19 comprehensive INEEL site-wide ecological risk
20 assessment. And those two sites are going to be
21 addressed in that.

22 What I would like to do next is kind
23 of take a tour of the eight sites that have an
24 unacceptable risk for human health. They are
25 divided up into three categories, the first of

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1 which is nonradiological contaminated soils. Is
2 that an exciting picture or what? If you look real
3 close, this is one of the burn pits, and the other
4 burn pit sites looks like this.

5 The burn pits is where they would
6 take industrial or construction debris, scrap
7 pallets and two-by-fours, waste, paint, turpentine,
8 that kind of stuff. They would take it out in the
9 desert and dig a pit and at the end of the day,
10 they would put this stuff in it and burn it. That
11 is how they disposed of it.

12 The first slide I put up, there is
13 one burn pit there. There is actually four burn
14 pits here. The total area is about a half an acre,
15 and we're concerned about some lead contamination
16 in the soil.

17 The next nonrad contaminated site is
18 a mercury spill site. The aircraft engines that
19 they were making under the Aircraft Nuclear
20 Propulsion programs, those reactors were shielded
21 with mercury. As they were taking one of the
22 engines into the hot shop here, they managed to
23 spill from 800 to 1000 gallons of mercury along the
24 railroad tracks. That was back in, I think, 1958.
25 They picked most of it up right after it happened,

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1 but some was left behind. I think it was 1990 or
2 '93, they went back and did a removal to take out
3 the rest of the mercury. The railroad tracks are
4 no longer there. They dug down about four feet,
5 but there is still some mercury remaining.

6 And the last of the non-rad
7 contaminated soil sites. This is the diesel spill
8 site. There are two diesel tanks, one here and one
9 here, and a pipe about 100 hundred feet long
10 connecting them, the pipe between the two tanks
11 leaked. The tanks and the pipe have all been taken
12 out, but there is still some diesel contamination
13 remaining.

14 The next category --

15 AUDIENCE MEMBER: Could we go back
16 to the mercury for just a minute? What sort of
17 remaining mercury is there, subsoil or deeper?

18 MR. SHAW: Yeah, it's in the soil.

19 They took the tracks out and the ties are gone.
20 It's pretty much this whole area from here up to
21 the building. They went down -- maybe Dave can
22 help out -- about four feet, I think, excavated
23 down to four feet and back-filled it with clean
24 soil, and deeper than four feet there is still some
25 mercury remaining.

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1 These are the two radiologically
2 contaminated soil sites, the first of which is
3 Area B, south of the turntable. The turntable sits
4 right about there, and we're talking about this
5 triangular area here. This area was contaminated,
6 actually from this area here, which I will talk
7 about in a minute.

8 These are the PM-2A tanks. There
9 was a spill when they were transferring the
10 contents of the tanks to a tanker truck, which
11 contaminated the soil in this area. And at least
12 in the eastern end of the state, the wind always
13 blows this way. It actually blew the contamination
14 from this area over across the road into this
15 area.

16 We did a removal action a few years
17 ago where they got most of the contaminated soil,
18 but there is five areas left that are still
19 contaminated. It's about an acre, and cesium-137
20 is the contaminant that we're concerned about
21 there. The other rad soil site is the disposal
22 pond. This is the berm that goes around the pond
23 that actually extends on down. It's about a
24 35-acre pond. Only the area in this top corner
25 here is contaminated. It's about five acres.

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1 Cesium-137 and, possibly, radium-226.

2 AUDIENCE MEMBER: The cesium spill,
3 what year was that?

4 MR. SHAW: Do you guys remember the
5 date when we over-filled the PM-2A tanks?

6 MR. BURNS: We could look that up.

7 MR. SHAW: It's in one of
8 documents. We will look it up for you. I'm
9 thinking it was in the mid-'80s, but I'm not
10 certain.

11 The last group of sites are the tank
12 sites. This is V1, 2 and 3 and V9, which is
13 another smaller tank that sits over here. These
14 are 10,000-gallon stainless steel tanks. There is
15 some soil contamination at the surface from when
16 the tanks were overfilled. About 6,000 gallons
17 total spread amongst these four tanks. A real
18 interesting cocktail of stuff in these tanks is
19 listed. Hazardous waste, metals, radionuclides,
20 PCBs, all kinds of good stuff.

21 And last of the tank sites, the one
22 that I showed you these other ones, these are the
23 tops of the PM-2A tanks. They sit this way. These
24 are two 50,000-gallon carbon steel tanks. They
25 were pumped dry, down to about an inch of the

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1 bottom. The remaining liquid was absorbed in
2 diatomaceous earth that was blown into the tanks.
3 Like I said before, there was some soil
4 contamination from a spill. Cesium-137 is what
5 we're concerned with there.

6 I hope that should give you a
7 picture of what we're talking about here. Doug
8 Burns is going to come up and talk about the risk
9 assessment.

10 MR. BURNS: It turns out that the
11 spill, the large spill at the PM-2A tanks, was in
12 1972. And PM-2A tanks were shut down in 1975 due
13 to continuing spillage and operational
14 difficulties.

15 As Mark mentioned, we did
16 preliminary investigations at the Test Area North
17 and identified 94 potential release sites. This
18 first slide that I'm going to show you kind of
19 outlines the process, the investigation process
20 that we followed to track those 94 sites and
21 evaluate them.

22 The process started out with a
23 preliminary investigation phase where we identified
24 these sites and moved into identification of
25 No Further Action sites. We identified which of

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1 those 94 potential sites really didn't have any
2 source of contamination. And we also identified
3 several removal action sites. These are sites that
4 we could take some fast action, remediating the
5 contamination of these sites. Removal actions
6 included, like, the mercury spill site that Mark
7 mentioned, the radionuclide contaminated soil
8 removal action. There was a bottle, buried bottle
9 site, settling type bottles, and we dug up some of
10 those bottles. There was also the groundwater
11 contamination site that Mark mentioned.

12 At Test Area North, right up here in
13 this area, there, that is an injection well. And
14 through the 1950s, 1960s and '70s, contaminated
15 liquids were injected down that well into the Snake
16 River Plain aquifer beneath Test Area North. That
17 well was shut down, and in 1989 we went into the
18 well and took out of contaminated sludge from the
19 well. That was actually the first removal action
20 at the INEEL. But there is still a groundwater
21 contamination plume that extends out from that
22 well. Right now we are undergoing some remediation
23 efforts of that contamination plume. We're trying
24 to contain the plume and are investigating various
25 ways to try to reduce the size of that plume.

1 So this Remedial Investigation
2 Feasibility Study that we're here to talk about
3 tonight, builds on that Record of Decision for the
4 OU 1-07B project. For the purposes of our
5 investigation, we assume that all of the remedial
6 efforts associated with that groundwater plume will
7 be successful. And we calculated our risks with
8 the remedial -- or the residual contamination in
9 the groundwater plume as our baseline, so we
10 evaluated potential contamination that might move
11 to the groundwater and add to the residual left
12 over from that groundwater plume.

13 Okay. Then our investigation now
14 has moved into the comprehensive investigation.
15 This comprehensive investigation, we took all of
16 our sites that we've identified contamination at,
17 and we calculated risks, comprehensive risks from
18 all of those sites.

19 This comprehensive study is now
20 moving into the decision phase, of which the
21 proposed plan is part of that decision phase.
22 Then, once we move through the comment periods,
23 take all your comments, respond to the comments,
24 respond to the agency comments on this proposed
25 plan, we will write a Record of Decision for the

1 Operable
2 Unit 1-10 Remedial Feasibility Study. This Record
3 of Decision we will identify remedial designs and
4 remedial actions, monitoring plans, and possibly No
5 Action determinations for other sites.

6 All right. The next slides I will
7 show you summarize the risk assessment that we
8 performed for this Comprehensive Remedial
9 Investigation Feasibility Study. As Mark
10 mentioned, our risk assessment had two parts, a
11 human health evaluation and an ecological
12 evaluation. We're here primarily to talk about the
13 human health evaluation. And, in turn, that human
14 health evaluation also had two parts. The first
15 part was an the occupational exposure scenario
16 where first of all, we evaluated potential risks to
17 workers who might be working at the site today, at
18 these contaminated sites today, and also risks that
19 might be posed to workers who would work at the
20 sites 100 years in the future. Right now we expect
21 that the Department of Energy will maintain
22 institutional control of the INEEL for 100 years,
23 so that is why we established the 100-year
24 occupational scenario.

25 The second part of the human health

1 analysis was a residential scenario. Under this
2 exposure scenario, we evaluated risk to a
3 hypothetical resident who might move to the Test
4 Area North area after DOE gives up the
5 institutional control.

6 All right. Under those two exposure
7 scenarios, we evaluated various exposure pathways.
8 An exposure pathway is basically a means by which
9 contamination can move from the environment and get
10 into a person's body. For instance, somebody might
11 inhale contaminated dust that is produced by some
12 of our release sites or might ingest soil that is
13 contaminated at our sites. So this picture
14 illustrates some of the exposure pathways -- well,
15 on all of these exposure pathways, we evaluated our
16 risk assessment. Under each one of these exposure
17 pathways, we calculated risks for each contaminant
18 that we identified at the release sites.

19 AUDIENCE MEMBER: May I ask a
20 question? Do you take into account the secondary
21 contamination of an individual who might go hunting
22 and shoot one of those deers?

23 MR. BURNS: What we tried to do was
24 to evaluate the worst-case exposure scenarios. If
25 somebody were to go hunting at one of these sites,

1 they would tend to be there for a limited amount of
2 time, a couple weeks. They might eat the meat from
3 the deer that had been at the site for a little bit
4 of time. So the scenarios that we evaluated, we
5 used what we call upper-bound exposure parameters.
6 For example, the residential scenario, we assume
7 that somebody would be exposed to the contaminants
8 for 350 days per year for a 30-year duration, so we
9 built these upper-bound exposure scenarios rather
10 than the less-limiting hunting scenario. We
11 focused more on the occupational than the
12 residential scenarios.

13 Our risk assessment identified
14 several contaminants of concern. First of all, we
15 had a couple radionuclides. These were cesium-137
16 and radium-226. These radionuclides show up in the
17 disposal pond that Mark mentioned and several of
18 the other sites. Metals contamination, we had
19 several metals including mercury at the mercury
20 spill site; lead at the burn pits, manganese and
21 arsenic, also, at the disposal pond.

22 We had some diesel contamination at
23 the diesel spill site over here at Water Reactor
24 Research Test Facility. We also had some organic
25 contamination, principally in our tank sites.

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1 These are principally chlorinated solvents that
2 have been spilled at our sites. Then we also had
3 polychlorinated biphenyls, PCBs.

4 AUDIENCE MEMBER: Any organics
5 acids?

6 MR. BURNS: No, principally they
7 were solvents, those types of things.

8 AUDIENCE MEMBER: Alcohol.

9 MR. BURNS: Yeah. The next three
10 slides illustrate -- well, they summarize the
11 actual risk results that we calculated. Okay.
12 This first slide shows the results of the
13 occupational exposure scenario. Now, this
14 left-hand scale right here shows it's a scale of
15 risk results.

16 Let's imagine for a second we had a
17 release site where a worker, working at that site
18 for 25 years, would have a one chance in 10 of
19 developing cancer as a result of working at the
20 sites. That site -- the risk for that site, would
21 fall right here at the one in 10 level. So this
22 graph shows that our worst-case calculated site
23 falls at the one in 1,000 chance of developing
24 cancer from working at the site.

25 Now, EPA has established an

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1 acceptable -- what is termed as an acceptable risk
2 level right here at the one in 10,000 level. So
3 any sites that have a risk that falls below this
4 one in 10,000 risk level has been termed an
5 acceptable -- that is an acceptable risk. So you
6 can see from this graph we have several sites that
7 fall above the one in 10,000 level including the
8 PM-2A tanks, the V-tank sites, the soil
9 contaminations area and the disposal pond.

10 Now, I should mention that there
11 were three sites, the two burn pits and the diesel
12 fuel site where all the contaminants at those sites
13 did not have toxicity data, so we could not
14 calculate risks for those three sites. So what we
15 did was, we went out and sampled the sites and then
16 compared our sample results to other regulatory
17 limits besides risk limits. For instance, lead has
18 a regulatory clean-up level of 400 PPM, so we have
19 determined the risk from the burn pits is
20 unacceptable because we had measured lead
21 concentrations that exceeded that 400 PPM level.

22 AUDIENCE MEMBER: So that is just
23 the risk level for people that have worked there
24 for at least 25 years?

25 MR. BURNS: That was our assumption

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1 under the exposure scenario. We assumed that the
2 worker would work at the site for 25 years, worked
3 there for 250 days per year, and then we calculated
4 the risk to that person, a hypothetical worker.

5 AUDIENCE MEMBER: Why did you guys
6 assume the 25 years? Is that -- I mean, I don't
7 know anyone who kept a job for 25 years.

8 MR. BURNS: That's right. What
9 we're saying is that most workers work for less
10 time than 25 years, so the risk would be less than
11 the numbers that we calculated. But our EPA
12 guidance for a risk assessment is geared towards
13 calculating upper-bound risks. We're trying to be
14 as protective as possible so our calculations are
15 upper-bound conservative calculations. And,
16 similarly, in the residential scenario, we assume
17 that somebody is going to live at the site for
18 30 years. It's a similar case where very few
19 people would actually live in a place for
20 30 years.

21 AUDIENCE MEMBER: I wonder if you
22 would be missing out on people who are developing
23 cancer that lived there for shorter periods of time
24 that you're not calculating for.

25 MR. BURNS: All of these

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1 calculations that we perform for this risk
2 assessment, these are calculations. We didn't
3 actually go out and find data on how many people
4 had developed cancer because we don't actually have
5 people who are living at these sites, and also, we
6 have institutional controls that are preventing
7 workers from actually working at a contaminated
8 site all the time. So, really, we haven't found
9 any measurable impact from these sites, but the
10 risk assessment we performed in a conservative
11 manner to try to measure the upper-bound risk that
12 might be posed by the site.

13 The next slide shows the results of
14 the residential exposure scenario. It's a similar
15 graph, but as you can see under the residential
16 exposure assumptions, we have several other sites
17 that fall below that one in 10,000 risk level
18 including the PM-2A tanks, the disposal pond, and
19 this time the soil contamination area that Mark
20 pointed out, that triangular area and also the
21 mercury spill site.

22 Those first two slides showed the
23 results of carcinogenic risk for the risk if
24 somebody developed cancer from exposure to the
25 site. The final part of the risk assessment was

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1 evaluation for noncarcinogenic health effects.
 2 Now, this graph the scale on this
 3 graph is slightly different. EPA has gone -- or
 4 lots of scientists have gone out and they performed
 5 measurements on various contaminants. And for
 6 noncarcinogenic contaminants, there is generally a
 7 level of exposure that does not cause any health
 8 impact at all. So EPA has developed a database
 9 that provides information about those levels of no
 10 impact. And so this noncarcinogenic portion of our
 11 risk assessment compares the level of exposure from
 12 our sites to this acceptable level, this no-impact
 13 level. And a site that has an exposure that just
 14 equals this no-impact level, we have a hazard
 15 quotient of one. So any site that produces more
 16 exposure than this acceptable level would have a
 17 greater hazard quotient than one. And those sites
 18 are shown up here in the clear area, whereas sites
 19 that have less than a hazard quotient of one would
 20 fall in the blue area. As you can see from this
 21 graph, we have the mercury spill site, the disposal
 22 pond, the soil contamination area, the V-Tanks and
 23 PM-2A tanks, all that have hazard quotients that
 24 fell above that level of one.

25 So that summarizes the risk

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1 assessment. Are there any other questions,
 2 something that might not have been clear in that
 3 risk assessment? If not, Dave Michael is going to
 4 come up and introduce the remedial action
 5 objectives that we have identified for our release
 6 sites.

7 MR. MICHAEL: So far tonight you
 8 have heard about the history of the INEEL. You've
 9 heard about our history of what went on in Test
 10 Area North. Doug just explained to you about the
 11 risk associated with the sites. And earlier in the
 12 program, we said there were eight sites that had
 13 risk that was unacceptable, and that we needed to
 14 look at further, as far as what we would do to
 15 control those risks or remove those risks.

16 So what I want to talk about now is
 17 the remediation that we propose to do at Test Area
 18 North. And we will look at them, at each site, one
 19 at a time. And as we started developing remedies
 20 for these sites, we had to have some sort of goal
 21 that would be required to take care of that site,
 22 and so we developed some remedial action
 23 objectives. Remedial action objectives are just
 24 goals that would be required to be met at the
 25 completion or during the remediation of that site.

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1 We divided it up into different
 2 groups. The first one is our soil pathways. We
 3 talked about we had contaminated soils. Some of
 4 those soils were radionuclide contaminated; some
 5 were
 6 nonradionuclide contaminated. So we developed
 7 these objectives that whatever we would do,
 8 whatever remediation that we would do to the
 9 contaminated soil sites, we would have to meet
 10 these objectives.

11 The first one that deals with the
 12 radiological contaminated sites -- and,
 13 essentially, whatever we do, the goal that would be
 14 required to be met would be to reduce the risk from
 15 cesium and radium to less than one in 10,000. The
 16 goal that we would have for the site that has lead
 17 contamination is that we would prevent anyone from
 18 having direct exposure to the lead at that site.

19 The last one is to prevent the
 20 uptake of mercury at that one site that they had
 21 mercury contamination. In other words, there would
 22 be no uptake through growing homegrown produce at
 23 that site, which would be a release mechanism of
 24 the mercury.

25 The other group of sites that we had

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1 was our underground storage tanks. We have seen
 2 those. We have no indication that those tanks have
 3 ever leaked, so our goal is that whatever we do
 4 with those tanks, we need to ensure that we never
 5 have a release of those tanks to the environment.

6 The last group that we're going to
 7 talk briefly tonight is our co-located facility.
 8 And a co-located facilities are those sites that
 9 are near or next to the 94 sites that we found that
 10 may have a potential of a release. These
 11 co-located facilities are other facilities that,
 12 because they are next to or near, we want to keep
 13 an eye on them also.

14 The first remedial action objective
 15 is that we want to make sure that in the next
 16 hundred years, between now and the time those
 17 facilities would be shut down or removed, tore
 18 down, that we never have a release to the
 19 environment, and we never have a risk associated
 20 with that site greater than one in 10,000.

21 At the same time we want to make
 22 sure that no releases from those sites that are
 23 near or next to these 94 would ever create a
 24 non-cancer risk of greater than one, the hazard
 25 quotient greater than one.

1 The last one is that if we ever
2 discover a site, another site that appears to have
3 a release to the environment that would cause a
4 risk greater than one in 10,000, then we would
5 remediate it, we would go in and clean it up.

6 After we develop these goals that
7 would be required to be met during the remediation,
8 we started determining remedies that we could do to
9 possibly reach these goals. And so, as we
10 developed these remedies, we developed an
11 evaluation criteria. Actually, the evaluation
12 criteria is prescribed by law, and these criteria
13 are things that you will evaluate, whatever remedy
14 that you look at and evaluate this remedy and
15 compare it to other remedies.

16 The first two we call threshold
17 criteria. In other words, these are two criteria
18 that whatever remedy that we were to pick has to
19 meet this. The first one is that we would protect
20 the human health and environment. The second one
21 that it will comply with laws. And it will comply
22 with both federal laws and state laws. The next
23 group of criteria that we evaluated each site for
24 we call balancing criteria. A balancing criteria
25 is a way that we can actually judge each remedy and

1 compare it to another.

2 We have long-term effectiveness,
3 which would be for future residents. We have
4 short-term effectiveness. This would be for the
5 construction workers that would be doing the
6 remedy, the workers around that site. We have --
7 we compare the reduction of the toxicity, the
8 mobility of the contamination and also so, maybe,
9 reducing the volume by treatment.

10 We also look and see how easy it is
11 to implement this remedy. And last but not least,
12 we looked at the cost. What we do is, we take
13 every remedy that we think might work, and we
14 compare it for these five criteria, and then see
15 which one comes up with the highest rating.

16 The last is what we call the
17 modifying criteria, so whatever we decide to do,
18 first of all, it has to have the state acceptance,
19 and we have to have buy-in from the state of
20 Idaho. And then last is the community acceptance.
21 That is one of the reasons that we're here tonight,
22 is to tell you what remedies that we have
23 evaluated, what remedies we have determined to be
24 what we feel
25 are the most preferred, and we want to get your

1 buy-in.

2 We're going to look at these in
3 different types of contamination. The first one is
4 the nonradionuclides contamination and then the
5 low level radionuclides contaminated soils. We
6 looked at various different types of remedies, the
7 first one just being No Action. We looked at, what
8 if we just walked away and did nothing? No site
9 would have no action meet the two threshold
10 criteria. So, in other words, if we were to walk
11 away, we would not meet the threshold criteria.
12 Remember, I said threshold criteria are criteria
13 that must be met. So, we immediately, after
14 looking at, it dropped the No Action.

15 The next step that we looked at
16 would be limited action. In other words, we would
17 control access to the contamination. We would do
18 this in various methods such as building perimeter
19 fencing around the site. We would post signs to
20 make sure that no one got past the fence. We would
21 control water diversion. In other words, we would
22 make sure there was no flooding or anything that
23 would cover the site with water and cause a
24 problem. We would also, on a yearly basis, we
25 would sample and monitor that contamination and

1 make sure that it wasn't spreading, wasn't being
2 released to the environment. We would also, if
3 necessary, even put deed restrictions on that piece
4 of land where the contamination would be. Deed
5 restrictions, what that means is that if the
6 Department of Energy would no longer have control
7 of this land and someone else would, say, either
8 another agency or maybe after 100 years someone
9 wanting to build here, we would have deed
10 restrictions and it would be in the records that
11 there was contamination present, same as you would
12 have a -- you always do a deed check when you buy a
13 home.

14 The next type of remedy that we
15 looked at is containment. Containment may be an
16 engineered barrier. It may be a large cap of
17 native soil to make sure that the contamination was
18 far enough away that it won't hurt anyone. We also
19 looked at excavate and disposal for each remedy
20 that we looked at. We looked at it and said -- we
21 looked at the possibility of just digging them up
22 and excavating it and then disposing of it or
23 placing it someplace else. The last one we looked
24 at was going in and removing the contamination, the
25 contaminated soil and treating it in different

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1 methods.
 2 What I'm going to do now is tell you
 3 what, after all of these evaluations, of the
 4 different types of remedies, what we feel is the
 5 preferred alternative. We will look at each site.
 6 The first one is the Water Reactor Research Test
 7 Facility burn pits. If you remember, this site
 8 here was a burn pit that had construction debris
 9 that was put in it and wood pallets, paint thinner,
 10 that sort of thing was put there, it was burned
 11 every day, it was in a pit, it was then later
 12 covered up with with a layer of soil, grass is
 13 grown back. After evaluating it for all the
 14 different criteria, we feel the best action for
 15 this site would be limited action. There is some
 16 residual lead contamination there and what we would
 17 do is control access with the limited action, that
 18 is with the fencing, the signs. Any time that we
 19 would leave contamination in place, we would also
 20 have a permanent marker at that site identifying,
 21 say, like a concrete marker to make sure that
 22 anybody that went up there would know not to dig.
 23 AUDIENCE MEMBER: Do you guys have
 24 information on how much the cost was for different
 25 action plans other than just the one that you

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1 preferred?
 2 MR. MICHAEL: Yes. Both in the
 3 proposed plan, which looks like this. We have the
 4 cost associated with each remedy that we looked at
 5 for the site plus the description of the remedy,
 6 and then, also, we have a very detailed description
 7 of when we looked at, the different alternatives in
 8 the Remedial Investigation Feasibility Study.
 9 The second site we will look at is
 10 another burn pit. It was a technical support
 11 facility burn pit. This one down here. Again,
 12 that was construction debris just like the other
 13 burn pit. There was some lead contamination still
 14 left from that one. That one, also, we recommend
 15 that we have limited action. We will control it
 16 with signs, with fencing. We will monitor it every
 17 year. We will have a permanent marker.
 18 It's also important to remember that
 19 on all of these remedies, every five years we will
 20 go back and look at them again to make sure that
 21 that remedy is working as we've claimed it would
 22 tonight. If we find something different, we find
 23 contamination starting to spread or something, then
 24 we would reevaluate and go in and change. So
 25 it will be looked at on yearly basis through

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1 monitoring and every five years we will look at it
 2 and reevaluate it.
 3 AUDIENCE MEMBER: For those two burn
 4 pits -- or for those two different types of burn
 5 pits, then, what we're looking at that in
 6 perpetuity, taking care of them because of the
 7 lead, for instance, doesn't have a half-life or
 8 isn't going to go anywhere, so it's quite a long
 9 project.
 10 MR. MICHAEL: Yes. It's also
 11 immobile so it should not move, so it should stay
 12 right there in place, and then we will control it
 13 through the different actions.
 14 AUDIENCE MEMBER: So is there
 15 consideration -- sorry, I have not kept up with
 16 the latest February consideration of the impact of
 17 earthquakes.
 18 MR. MICHAEL: Did we look at the
 19 risk assessment to earthquakes?
 20 MR. BURNS: No, we didn't
 21 specifically address contamination spreads through
 22 earthquake or something like that. I think that
 23 type of evaluation -- if an earthquake were to
 24 happen, it would be -- any kind of spread of
 25 contamination would be picked up on the yearly

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1 monitoring and reevaluated under this five-year
 2 reevaluation process. So those types of events
 3 weren't specifically analyzed for, but we're hoping
 4 to capture any type of problem associated within
 5 the results of this monitoring and reevaluation.
 6 AUDIENCE MEMBER: It seems to me
 7 that a substantial earthquake could generate a
 8 chasm or disruption or fault enough to allow that
 9 material to move into the aquifer.
 10 MR. BURNS: Yes. I think in theory
 11 that could happen. In reality, the geologic
 12 setting out in the desert is such that these large
 13 chasms don't form in the sediments. There are
 14 other physical limitations on the sediment that
 15 would limit that type of a failure. But I can see
 16 your point that it is a possibility.
 17 MR. MICHAEL: One thing, if we look
 18 at the burn pits, the burn pits have, oh,
 19 approximately, like, 30 to 35 feet of soil and then
 20 around 35 or so down below the surface then it
 21 turns to basalt. It's basalt all the way down. I
 22 think it's --
 23 MR. SHAW: 210 feet.
 24 MR. MICHAEL: 210 feet, then, before
 25 you reach the aquifer. So you would have to have

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1 some sort of a catastrophic failure of that basalt,
2 about 200 feet of it for it to reach the aquifer.

3 MR. CODY: There has been a lot of
4 thought to the earthquake problem, but mostly in
5 terms of the facilities, the structures. As far as
6 the burn pits, things like that, probably it would
7 result in tremors, but there probably wouldn't be
8 much impact otherwise. It might get shaken up in
9 that. The most concern has always been to the
10 facilities at the INEEL and what would happen
11 there. They would be moved or there would be
12 tremors that would come through, but they really
13 wouldn't go much beyond that. When the earthquake
14 was finished there probably wouldn't be much change
15 in the configuration of a site, like a burn pit.
16 There could be damage to a facility. There is
17 always the possibility, but that is mainly how it's
18 been looked at.

19 AUDIENCE MEMBER: Would the damage
20 to the facility be, like, causing a break where
21 leakage could occur into the aquifer? Is that what
22 you mean by damage to a facility?

23 MR. CODY: A facility could be
24 damaged to the point where there could be a
25 leakage. I mean, depending on what the facility

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1 was, sure. But whether it would get to the aquifer
2 or not, I mean, if there was something that was
3 that obvious, there would probably be emergency
4 measures taken to clean it up because nothing would
5 travel that fast. That several hundred feet could
6 take years, for all we know, to get down. It
7 wouldn't just be a straight line down to the
8 aquifer.

9 MR. MICHAEL: The next site that we
10 will talk about is the mercury spill site, that is,
11 the site that had the railroad tracks. As we said,
12 we've already cleaned that up once. What actually
13 happened was, we've got -- I want to say almost all
14 the mercury there, but the clean-up levels that we
15 cleaned up, too, turned out that the residual
16 mercury that would be there just below the clean-up
17 levels is enough of a concern, so there is not a
18 lot of mercury there. But we felt that the best
19 alternative would be to go in, excavate and remove
20 that soil that is contaminated with mercury and
21 then dispose of it off the INEEL. When I say "off
22 site" or "on site," if I say "off site," I mean
23 take it completely off the Idaho National
24 Engineering Environmental Laboratory. So on site
25 we would store it or whatever, dispose of it on the

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1 INEEL.

2 AUDIENCE MEMBER: Where would they
3 put that if they took it off site?

4 MR. MICHAEL: It would have to be
5 some place in the county that would accept
6 mercury-contaminated soil.

7 AUDIENCE MEMBER: What elemental is
8 that? What level is that?

9 MR. MICHAEL: It's elemental.

10 MR. BURNS: 25 PPM was the clean-up
11 level of the previous removal action, so all the
12 added contamination, 25 PPM or below.

13 AUDIENCE MEMBER: There is no
14 beads?

15 MR. BURNS: There is no beads. It's
16 in an elemental form but the mercury forms
17 complexes with the ions in the soil. So there is
18 no free mercury sitting in the soil.

19 MR. MICHAEL: The last one was the
20 diesel spill site. I'll hold it up. The bottom
21 one here between the two buildings, this area
22 between the two buildings that, actually, as you
23 can see, because it's in between the two buildings,
24 it's actually inside of a facility.

25 The facility already has a fence

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1 around it. It's between two concrete buildings.
2 It's actually a parking lot and a roadway covering
3 the contaminated soil now. The contaminated soil
4 was, like, five feet deep, so the first top five
5 feet of the soil was actually clean, and then it
6 has, like, a parking lot roadway cover on top of
7 that, so our preferred alternative for that site
8 would be also for limited action. We will make
9 sure that there is signs, that there is always a
10 fence there, a concrete marker and then we will
11 monitor it and evaluate it every five years.

12 AUDIENCE MEMBER: Is there any
13 technology available to do bioremediation,
14 injection of any kind of microbe that probably,
15 with very little oxygen, would be able to digest
16 some of that?

17 MR. CODY: It probably will
18 bioremediate some on its own. Then the time will
19 be on our side because it won't be -- the pathway
20 will be closed because there is clean soil over
21 that so it won't be impacting anyone, so it should.

22 AUDIENCE MEMBER: Mother nature,
23 basically, sooner or later will take care of that.

24 MR. CODY: Yeah, because it's not
25 traveling to the aquifer. It's tied up in the

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1 soils above the basalt.

2 MR. SHAW: We call it the diesel
3 spill site, but the material there is not diesel,
4 it's what the diesel has degraded to.

5 MR. CODY: Tar.

6 MR. MICHAEL: As far as the
7 radiological contaminated soils that we have, we
8 have the soil south of the railroad turntable, and
9 that was the -- you can't really see it on this,
10 but there is a road right along here and just to
11 the edge of the road, and then partly under the
12 road, we have some soil that is contaminated with
13 cesium. There already has been some clean-up
14 action already going on in this area. As we talked
15 earlier, the whole triangle along this side of the
16 road at one time was contaminated with cesium. We
17 had a removal action, where we went in and had been
18 digging up that soil and hauling it off site.
19 There is still some small areas that still have
20 contamination left. So our recommended alternative
21 here will be to continue that process, go ahead and
22 excavate it, and we will dispose of it on the INEEL
23 at an acceptable facility.

24 The last one is the technical
25 support disposal pond. This one is a unique site

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1 that I just want to tell you briefly about. Our
2 preferred alternative at this site is limited
3 action, same type of limited action that we talked
4 earlier. This site we know has cesium
5 contamination. We've also, during our sampling and
6 monitoring of this site, we found some radium
7 contamination.

8 Through further evaluation, the data
9 appears to show us that the radium contamination
10 that is there is natural occurring. In other
11 words, it's just naturally there inside the pond.
12 If you went outside the pond a couple hundred yards
13 and sample, you would still see the same level of
14 radium.

15 If it's natural occurring, we would
16 not clean that up. That is why we say that our
17 preferred alternative is limited action. We're
18 fairly certain that it is what we would call
19 background or natural occurring levels of radium.
20 If we also plan on doing additional sampling, if we
21 continue to sample -- and we will be sampling, say,
22 in the pond, we will sample outside the pond, and
23 we determine that it is not natural contamination,
24 natural occurring levels, then we would come
25 back -- and it explains this in the proposed plan,

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1 we would actually go in and excavate it and dispose
2 of it properly. To go in -- if you remember right,
3 this is a 35-acre pond, five acres of that pond is
4 contaminated, so when you go in and start digging
5 up five acres of soil, it gets very expensive.
6 That could go as high as \$20 million if you had to
7 remove it all. But right now, we're fairly
8 confident that it's natural occurring and that is
9 why we recommend limited action.

10 AUDIENCE MEMBER: By "fairly," what
11 is the statistical probability? Where are you at
12 by "fairly"?

13 MR. MICHAEL: We have had some other
14 data that was taken that shows that it would be
15 natural occurring. But just because of the
16 analytical techniques that they performed at that
17 time when they did that, that sampling and
18 analyses, we can't really count on it, so we want
19 to go back and resample it, do very detailed
20 analyses on it, very controlled analyses on it and
21 see if we get the same results.

22 AUDIENCE MEMBER: I'm not clear.
23 The radium you're saying is naturally occurring.
24 The cesium, however, was injected into the pond at
25 some point.

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1 MR. MICHAEL: The levels of cesium
2 that we have fall within the remedial action
3 objectives that it would decay away. And we always
4 look at a 100-year scenario and the cesium would
5 decay away in that 100 years to less than the risk,
6 the one in 10,000 risk.

7 AUDIENCE MEMBER: So after the 100
8 years is over?

9 MR. MICHAEL: We would not have
10 cesium there.

11 AUDIENCE MEMBER: Between now and
12 the 100 years, like, there is problems that can
13 definitely occur?

14 MR. MICHAEL: Not problems that
15 definitely occur, but in that 100 years, we would
16 control it to make sure that no one was ever
17 exposed to it. That is why we would have the fence
18 and signs and the permanent markers.

19 AUDIENCE MEMBER: What about, like,
20 animals that don't pay attention to fences and
21 winds that don't abide by signs and things like
22 that?

23 MR. BURNS: That, again, comes down
24 to the yearly monitoring. We would be monitoring
25 the site to make sure that we didn't have the

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1 cesium moving away from the pond as a result of
2 animal burrowing or wind and things like that. If
3 we did find that we did have contaminations
4 movement, then we would reevaluate the scenario.

5 Also, on your question about the
6 radium, we have a 95 percent confidence. The
7 statistical analyses show that the radium detention
8 that we have are background with a 95 percent
9 confidence level.

10 MR. MICHAEL: The other group of
11 sites that we're going to look at are the
12 underground storage tanks. We looked at many
13 different remedies for these tanks. You see five
14 here, but we looked at different variations.
15 Again, the first one we looked at was No Action.
16 What if we walked away? That would not be
17 acceptable. It would not meet the threshold
18 criteria, so we immediately dropped that. Then we
19 looked at the limited action, and we discussed that
20 fairly well tonight.

21 We also looked at different types of
22 addressing the contamination in the soil and in the
23 tanks. We looked at soil excavation. We dig up
24 the soil around the tanks. We would have to remove
25 the tanks. We would treat the contents of the

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1 tanks and also the soils around it. We also looked
2 at removing the contaminated soils around the
3 tanks, addressing the contents, say, by grouting or
4 something like that of the tanks, and then
5 disposing of the contaminated soil both on the site
6 and off the site.

7 We also looked at a technology, in
8 situ vitrification of the tanks. In situ
9 vitrification is actually using graphite
10 electrodes, and we would place them around the
11 tanks in a certain array that we would actually
12 have two planes of electrodes, and then whenever
13 you apply high current to these, electrical
14 current, the current flowing in between the
15 electrodes heated up hot enough that it actually
16 melts the soil. It will melt the tanks. It will
17 melt the tanks' contents. It melts it into a
18 molten mass, and then when it cools, you actually
19 have a glassified object. In the process of doing
20 this, you destroy or remove all the organics, all
21 the PCBs. Any radiation that would be in the tanks
22 through the melt, we found is just uniformly spread
23 at lower levels so you don't have, say, hot spots
24 in this but a lower level, uniform spread.

25 We have two tests going on right

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1 now. The second one from the bottom is in situ
2 treatment. That, like I said, was like grout.
3 Because of the organic contamination that is in the
4 tanks, we're not sure what the impact that would
5 have on grouting. Grouting is, like, concrete.
6 You can put it in, but we don't know how it would
7 harden, so we are running what we call a
8 treatability study currently, just to determine
9 what the impact of high organics has on a grouting
10 process.

11 The last one is the in situ
12 vitrification. We're also running a treatability
13 study on that. In situ vitrification, the acronym
14 for that is ISV. That has been done before.
15 Different technologies -- the way that we place the
16 electrodes, though, is a new technology. You may
17 have heard some different problems at ISV, or
18 in situ vitrification sites in the past, but this
19 is a new technology, the way the electrodes are
20 placed. Now, instead of the melt going from the
21 top down, the way they place the electrodes, the
22 melts come in from the sides.

23 So we're testing that right now to
24 see in an area where there is no contamination how
25 that melt would react on large tanks. So we're

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1 doing a treatability study on that. So there is
2 treatability studies being done on both the last
3 two. That is important to know because our
4 preferred alternatives, the first one that we will
5 talk about is the V-Tanks and that was the three
6 tanks that -- I assume that you can see here on the
7 bottom. There are three 10,000 gallon tanks
8 sitting side-by-side. Our recommended alternative
9 for that site is the in situ vitrification. We
10 would actually go -- using the electrodes and the
11 electrical current, glassify the tanks, the
12 contents and the soils around it. Then we would do
13 sampling after that to make sure that we removed
14 all of the contamination.

15 AUDIENCE MEMBER: How do you know
16 with that process -- now, those are the tanks, the
17 pea soup cocktail, how do you know that you won't
18 be causing an explosion or some criticality with
19 that intense heat and electrode exchange?

20 MR. MICHAEL: As far as explosion,
21 that is one of the reasons that we're doing the
22 treatability study. We're doing it on a tank that
23 is, like, 80 percent of the size of those tanks and
24 it will have contents in it, but it will be clean
25 contents, and then we will put soil or some other

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1 material that will absorb the liquid, and then
2 we're actually going to melt those tanks or melt
3 that tank and find out if it explodes or not. All
4 the technology shows us right now is that it does
5 not explode. That is why this technology was
6 developed, because of the control of the melt and
7 that the melt is going from the outside in. If
8 there is any pressure or anything built up in the
9 tanks, it gets vented off and collected in an
10 off-gas system.

11 AUDIENCE MEMBER: What do you mean
12 by the two words "in situ"?

13 MR. CODY: "In situ" means in place.

14 AUDIENCE MEMBER: Dave, I don't
15 believe that you addressed her concern about the
16 criticality.

17 MR. MICHAEL: In the criticality we
18 have sampled, and we know that we have some uranium
19 there, and we have looked at our analysis. And
20 first of all, as far as the criticality, for
21 criticality to happen, all the radionuclides would
22 have to be condensed in a small area, in a small
23 mass. One of the things about this treatment is
24 that it spreads it through the whole piece of
25 glass, so it reduces the level of contamination by

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1 spreading it out.

2 We also have been analyzing our
3 data. It was reported that we had some uranium-235
4 in the tanks. Because of the complicated way it
5 was to sample these tanks, we sampled at two
6 different locations, and then we had to look at the
7 worst case with our data. Now, we went back and
8 reanalyzed it, tried to determine just what is
9 contaminated. It should just be the solid, the
10 sludge.

11 And for these 3 V-Tanks, we're
12 pretty certain by evaluating it, and we will
13 continue to evaluate it, that we do not have enough
14 uranium-235 that would have a criticality problem.
15 To have a criticality problem, the sludge in this
16 tank is like silt that you would see in the bottom
17 of the pond. For there to be a criticality
18 problem, all that silt that is in the bottom of the
19 tank would have to be condensed and compacted into
20 a real small, tight area, and just the nature of
21 the silt, we really don't -- there is no way for
22 that to happen. But it is one of the issues that
23 we will address and continue to look at as we test
24 the technology.

25 AUDIENCE MEMBER: It seems to me

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1 that that would be a rather intense chemical
2 phenomenon. I know if you provide heat under
3 pressure, which is basically what you're doing,
4 things start migrating and moving at different
5 rates and are attracted to other components
6 depending on their molecular weight. It sounds
7 scary to me, frankly, to be taking -- how many
8 gallons did do you say?

9 MR. MICHAEL: The tanks actually
10 hold 10,000 gallons, but they are not full.

11 AUDIENCE MEMBER: But they are down
12 to the sludge?

13 MR. MICHAEL: These actually have
14 some liquid in them, these three tanks. Now, one
15 of the processes of having a criticality problem is
16 having the water in the tanks act as a moderator.
17 Because when we -- for this process to work, you
18 actually heat up the tanks to cause a melt. And
19 one of the first things that will happen when you
20 heat up is all the water will be evaporated off, so
21 now you will no longer have the water to act like a
22 moderator, so that actually reduces the chance of
23 having a criticality, or removes the chance of
24 having a criticality once the water is gone.

25 AUDIENCE MEMBER: How do you mean by

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1 a V-Tank?

2 MR. MICHAEL: We call them V-Tanks.
3 The V-Tanks, there is actually three tanks, and
4 they are designated V-1, V-2 and V-3. When the
5 facility was being built, the nomenclature on the
6 drawings labeled these, the same that you would
7 have a building number, this would be a vessel
8 number, so it was Vessel 1, Vessel 2, Vessel 3.

9 The last tank site that we have are
10 the PM-2A tanks. These are the large tanks that
11 you see in these photos. Those are the tanks that,
12 when they were taken out of service, all the liquid
13 that they could get out of it was pumped. And
14 there was approximately just one inch of liquid in
15 the bottom of the tank that they just couldn't get
16 out.

17 At that time they took diatomaceous
18 earth and blew into the tank to soak up any water.
19 So these tanks have no free liquid in them right
20 now. They just have a layer of diatomaceous earth
21 at the bottom. Because they had radiological
22 contamination in the water, now the diatomaceous
23 earth is also contaminated.

24 One of the things that is important
25 to note on these tanks, because of the size, they

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1 are approximately 15 feet in diameter, so that
 2 means the contamination is approximately 15 feet
 3 from the top of the tank. The top of the tank is
 4 buried 10 feet below the surface, so any
 5 contamination that is there in that diatomaceous
 6 earth is now 25 feet below the surface. It's bound
 7 so it can't go anywhere and all that we're
 8 experiencing is direct radiation exposure.

9 What our plan would be, then, to do
 10 with this tank is that to actually fill that tank,
 11 avoid space in the tank with an inert material. It
 12 may be soil. It may be grout, but anyway, we want
 13 to fill up the tank, so whatever we fill it up
 14 with, the contamination will be at the very bottom
 15 of that fill material. And we will just control it
 16 with a permanent marker and no one would ever be
 17 able to get into it then.

18 AUDIENCE MEMBER: Now, is that tank
 19 carbonized steel or the stainless?

20 MR. MICHAEL: That is the carbon
 21 steel tanks, yes.

22 AUDIENCE MEMBER: The anticipated
 23 life of those tanks' shelves would be?

24 MR. CODY: They pretty much reached
 25 their expected life already. They are at the end,

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1 pretty much. But, again, it's still INEEL soil
 2 that is still dry, so I think their integrity is
 3 intact so far, but they are pretty much at the end.

4 AUDIENCE MEMBER: So what would be
 5 happening under the surface if those walls begin to
 6 disintegrate?

7 MR. MICHAEL: It should stay right
 8 there.

9 AUDIENCE MEMBER: Should because
 10 it's been --

11 MR. MICHAEL: Immobilized by this
 12 grout?

13 MR. CODY: It's tied up in that
 14 diatomaceous earth.

15 MR. WILKENING: What branch are we
 16 dealing with? They are not very migratory just by
 17 themselves, are they?

18 MR. MICHAEL: No.

19 MR. WILKENING: They would have some
 20 sort of a strong force to drive them further, and
 21 it's a high desert environment, and you're,
 22 whatever, two hundred feet from the groundwater
 23 table.

24 AUDIENCE MEMBER: We have some
 25 contaminants that are in there that are going to

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1 last a couple years or so or tens of thousands of
 2 years and we could have some geologic changes.

3 MR. MICHAEL: I'm not sure that the
 4 length of time, though, that we're talking about,
 5 because it is cesium, it will decay on its own.

6 MR. CODY: Cesium ties up in soil
 7 the most of any radionuclides. I mean, it has the
 8 highest levels of tying up in soil -- I mean, it
 9 just doesn't move through soil readily, and that's
 10 been proven.

11 AUDIENCE MEMBER: So the chances are
 12 better -- the odds are better to be tied up and
 13 decay fast enough to --

14 MR. CODY: Right. They did some
 15 modeling, if you can believe the models. You can
 16 take them with a grain of salt, but they did some
 17 modeling of what would happen if there was a
 18 catastrophic release of those tank contents. They
 19 showed that it wouldn't impact the aquifer. I
 20 mean, if there is some way to make them go
 21 completely and release everything, which won't
 22 happen like that, so a worst-case scenario still
 23 showed no danger, highly improbably worst-case
 24 scenario.

25 MR. MICHAEL: One of the things

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1 about cesium, we talked about cesium-contaminated
 2 soil, the different areas that we talked about had
 3 cesium-contaminated soil, whether it was either
 4 spilled or whatever, it was almost always contained
 5 in the top six inches of the soil. That is even
 6 with snow and rain continually, year round, even
 7 though our moisture content is limited. Through
 8 the years, it's been contained in the top six
 9 inches of soil, so it does not migrate easily at
 10 all.

11 What I have presented is the
 12 alternatives that we recommend for our eight sites
 13 of concern. Just to refresh, remember we did have
 14 94 sites, eight of those we felt needed addressing,
 15 and we've discussed the way we would recommend to
 16 address those sites tonight.

17 You saw the different costs I put up
 18 with each site, if we totaled all the costs up to
 19 clean up Test Area North, we're looking at
 20 \$25.8 million for the capital costs. Capital costs
 21 are those costs that actually cost to do the
 22 remedy. There are some costs additional to that,
 23 which are due to the monitoring and that sort of
 24 thing over the next hundred years.

25 To kind of tell you where we're at

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1 now, we presented you with the alternatives to get
 2 your input. The next step, if you remember the one
 3 slide, is to develop a Record of Decision. That
 4 Record of Decision is planned on being finalized in
 5 the fall of this year. Once the Record of Decision
 6 is finalized, and the Record of Decision will then
 7 specifically state what we plan on doing, then the
 8 next phase is to actually start designing and
 9 doing. And with the Record of Decision being done
 10 in the fall of this year, being completed, then in
 11 the fall of this year we would start the design,
 12 and the actions that we would use for the different
 13 remedies.

14 I'm going to turn it back over to
 15 Erik.

16 MR. SIMPSON: Thanks. We've had
 17 some pretty good interaction so far. Does anyone
 18 else have any questions to ask of the project
 19 managers?

20 AUDIENCE MEMBER: I have another
 21 question with the in situ vitrification of the
 22 tanks. In the case, as you continue your research
 23 with less than 80 percent site, if that research
 24 indicates that this is a process that isn't going
 25 to be feasible, then, where do you -- what is

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1 Plan B or how do you cope with that kind of
 2 situation?

3 MR. MICHAEL: If we determine that
 4 the in situ vitrification would not be appropriate,
 5 then our fall-back position would be our next
 6 preferred alternative, say our second choice, would
 7 be the grouting, to go in and grout up the contents
 8 and bind them in place.

9 AUDIENCE MEMBER: I have a question
 10 about the injection well, what was the material
 11 that was put into the aquifer?

12 MR. BURNS: The principle material
 13 was TCE, trichlorethylene, so it's principally
 14 organic so we pumped down that well. We had TCE,
 15 and PCB and dichloroethane those are the three
 16 major contaminants that we're trying to contain in
 17 the aquifer.

18 AUDIENCE MEMBER: Do have you any
 19 idea how large the plume is?

20 MR. SHAW: Two-and-a-half miles
 21 long. What makes this an interesting problem is
 22 that the chemical and the red waste were mixed with
 23 sewage when they injected this stuff, so you have
 24 this sticky glop that was injected down into the
 25 well under pressure and it went out some distance

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1 into the fractured basalt. So over the years that
 2 the aquifer passes through this area, it's going to
 3 pick up the contaminants and wash them so far,
 4 about two-and-a-half miles down stream.

5 AUDIENCE MEMBER: So it's moving
 6 slow?

7 MR. SHAW: Thirty years.

8 MR. BURNS: Our latest data is
 9 tending to go indicate that the plumes need to be
 10 stable that it's not really moving. We, obviously,
 11 have to collect more data, but the indication is
 12 that it's moving very slowly or maybe not at all.

13 AUDIENCE MEMBER: How deep is the
 14 aquifer?

15 MR. SHAW: I think the effective
 16 bottom is about 400 feet. The top of it is about
 17 200, and I think the bottom in that area is about
 18 400.

19 AUDIENCE MEMBER: Where I worked, we
 20 had some trichlorethylene in the aquifer. We took
 21 it out. We developed a way to take it out, but it
 22 was not very far underground. I think you have a
 23 real tough problem.

24 It took us a long time to get the
 25 top few gallons off.

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1 MR. SIMPSON: If you're interested,
 2 there is a fact sheet in the back of the room that
 3 talks about that project. I can get it for you at
 4 the break.

5 AUDIENCE MEMBER: At Lawrence Lab?

6 MR. SIMPSON: No, here, this
 7 project.

8 AUDIENCE MEMBER: Were there records
 9 kept of the volumes?

10 MR. SHAW: Unfortunately, it's
 11 pretty sketchy. We estimate anywhere from 3500 to
 12 35,000 gallons were injected. This was from about
 13 1952 to 1972, and they didn't keep good records.

14 AUDIENCE MEMBER: In the overall
 15 clean-up process assessment, as you're assessing,
 16 do you have -- well, let me put it this way. It
 17 seems to me that anything that we can possibly do
 18 to stop -- to slow or stop this movement of the
 19 plume is a very high priority. It might need to
 20 be, let some other diesel fuel fly around for a
 21 while and chase this one.

22 MR. SHAW: We jumped on the problem
 23 right away back in -- I think it was discovered
 24 in -- we're going back before my time, but I think
 25 it was '87. They went in in 1989 and pulled a

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1 bunch of sludge out of the injection well, and
2 since about 1991 or so, they have been actively
3 remediating the plume. We have been pumping on it
4 continuously since -- oh, let's see, November of
5 '96 to contain that hot spot to keep it from
6 contributing to the plume any farther, so they
7 jumped right on it.

8 AUDIENCE MEMBER: The back end you
9 have a grip on it. What about the front end?

10 MR. SHAW: We have a grip on it. We
11 have a plan for taking care of it. We're looking
12 at some in situ bioremediation. We're looking at
13 in situ chemical oxidation. We're doing some tests
14 on that. We're over doing some more tests on the
15 natural attenuation to see what is happening in the
16 far reaches of the plume. Will nature take care of
17 it or will we have to go in there and help it? A
18 lot of work going on.

19 AUDIENCE MEMBER: What is your
20 estimate, 30 years?

21 MR. SHAW: The Record of Decision
22 says to restore the plume to within in MCLs within
23 100 years. The 30 years is a cost-estimating
24 window that you use.

25 MR. SIMPSON: Mark, will you define

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1 what MCLs are.

2 MR. SHAW: Maximum contaminant
3 level.

4 MR. SIMPSON: Any other questions?
5 I'll mention that we will hang around after the
6 meeting, if you think of other questions to ask of
7 the project managers.

8 At this time I would like to open it
9 up for the public comment session where your
10 comments are made for the record. And we have a
11 court reporter, who will be recording your comments
12 verbatim. When you do make your comments, please
13 state your name and give your address so we can
14 send you a copy of the Record of Decision. So, who
15 would like to go first? Anyone?

16
17 PUBLIC COMMENT

18
19 AUDIENCE MEMBER: I'm Pam McAllister.
20 I'm from Boise. I represent the Snake River
21 Alliance. I'm not going to enter any specific
22 comments into the record tonight, although I'm very
23 glad to have such a thorough presentation.

24 We will enter our comments in
25 written form. Beatrice Bradford will do that on

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1 our behalf. She is our program director. And we
2 appreciate the extension that you have given to the
3 other times. And for us, it may be that we will
4 need to request an extension again -- I don't know
5 if that is possible -- due to Beatrice's illness.

6 MR. SIMPSON: Thanks. Anyone else?
7 Okay. I just want to remind you that there are
8 comment forms at the back of each proposed plan and
9 those are postage-paid, so you can write your
10 comment and mail those to us. The comment period
11 for this project, once again, remains open until
12 March 18th. Our next public meeting is Thursday in
13 Moscow.

14 I should mention, the next time that
15 we will be here in Boise will be May the 5th to
16 discuss the results of the Comprehensive Remedial
17 Investigation Feasibility Study for the Idaho
18 Chemical Processing Plant.

19 I've been involved in writing fact
20 sheets for that project. I can tell you there is a
21 great deal of interest in the Chem Plant,
22 specifically, for the contamination that exists and
23 then also for the possible costs of remediation of
24 that facility.

25 AUDIENCE MEMBER: Do you have the

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1 other sites' schedules for that? Will you be
2 meeting in Idaho Falls and Moscow for the Chem
3 Processing Plant?

4 MR. SIMPSON: Yes, we will. Right
5 now the dates are tentative, but May 5th, 6th and
6 7th.

7 AUDIENCE MEMBER: The order?

8 MS. DOLD: I believe it's Boise,
9 Moscow and Idaho Falls.

10 MR. SIMPSON: I should mention there
11 will be another fact sheet that will becoming out
12 on that project as well.

13 AUDIENCE MEMBER: Is there any
14 flexibility in moving those dates one week into
15 May, or is that not the moving target part?

16 MR. SIMPSON: I would say the dates
17 at this point are just tentative.

18 AUDIENCE MEMBER: I would make a
19 note, offer it to the committee that it happens to
20 be that is the exact same date that all the
21 Alliance and some of our directors will be out of
22 the state at a National meeting, and we're going to
23 miss the big deal. We will be sending proxies or
24 conference calls or e-mails. S I don't know what
25 we will do, but if you can move it up to the next

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1 week of May, that will be very helpful for us.

2 MR. SIMPSON: I will convey your
3 comment to the project managers.

4 Also, you can request a briefing on
5 that project. And I have been involved in some
6 media briefings that we've done so far, and we did
7 a radio interview a couple weeks ago in Idaho
8 Falls. You can request a briefing on that project,
9 as well as Test Area North.

10 I would like to thank everyone for
11 coming tonight. As I mentioned earlier, we will
12 hang around afterwards, if you have any questions.
13 So thanks for coming.

14

15 (Meeting concluded at 8:30 p.m.)

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1 STATE OF IDAHO }
2 County of Ada) ss.

3

4 I, NANCY SCHWARTZ, a Notary
5 Public in and for the State of Idaho, do hereby
6 certify:

7 That said hearing was taken down by me
8 in shorthand at the time and place therein named
9 and thereafter reduced to computer type, and that
10 the foregoing transcript contains a true and
11 correct record of the said hearing, all done to the
12 best of my skill and ability.

13 I further certify that I have no
14 interest in the event of the action.

15 WITNESS my hand and seal this 20th day
16 of March, 1998.

17

18 Nancy Schwartz, Notary
Public in and for the

19

State of Idaho

20 My commission expires:

21 September 28, 1998

22

23

24

25

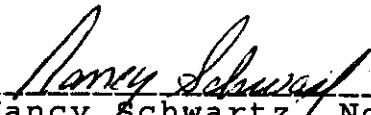
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) ss.
County of Ada)

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Nancy Schwartz, Notary
Public in and for the
State of Idaho

My commission expires:
September 28, 1998

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